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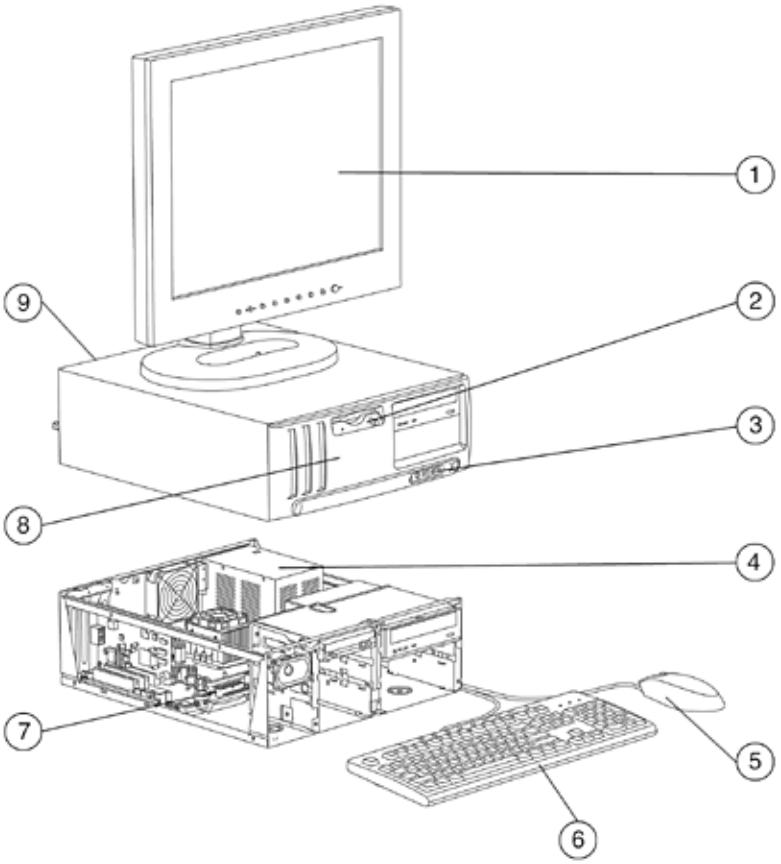
Overview

HP Compaq Business Desktop d330 Series

HP recommends Microsoft® Windows® XP Professional

Desktop

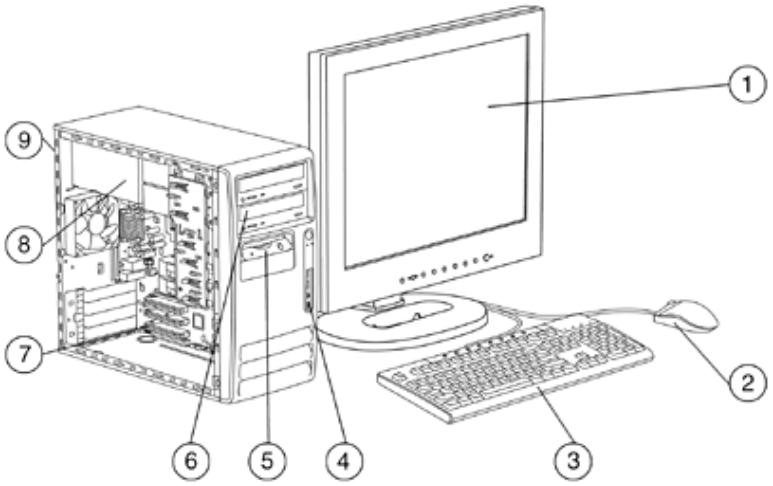
13.8 x 38.7 x 45.6 centimeters/5.45 x 15.25 x 17.95 inches



1. Monitor Sold Separately
2. Optional diskette drive or 3.5" external bay
3. 2 USB 2.0, headphone and microphone
4. 240-Watt Power Supply
5. 2-Button Scroll Mouse
6. Easy Access Keyboard
7. Expansion: 3 full Length PCI Slots, 1 full-length 8XAGP slot
8. Expansion: 2 internal 3.5" bays, 2 external 5.25" bays and 1 external 3.5" bay for CD-ROM, DVD-ROM, CD-RW or Combo Drives
9. Rear I/O 4 USB 2.0, 1 standard serial port, 1 optional serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1VGA, line-in headphone/mic

Microtower

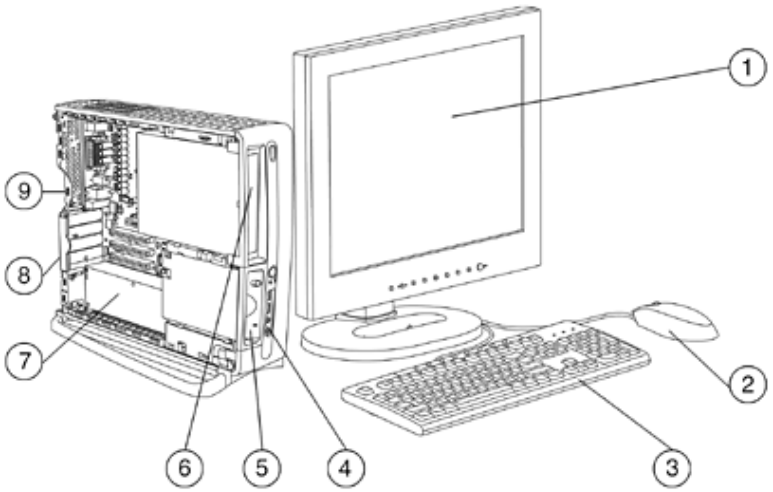
36.8 x 17.5 x 41.4 centimeters/14.5 x 6.88 x 16.31 inches



1. Monitor Sold Separately
2. 2-Button Scroll Mouse
3. Easy Access Keyboard
4. 2 USB 2.0, Headphone and Microphone
5. Optional diskette drive or 3.5" external bay
6. Expansion: 2 internal 3.5" bays, 2 external 5.25" bays and 2 external 3.5" bays for CD-ROM, DVD-ROM, CD-RW or Combo Drives
7. 3 full-height PCI slots and 1 8X AGP slot
8. 240-Watt Power Supply
9. Rear I/O: 4 USB 2.0, 1 standard serial port , 1 optional serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1 VGA, line-in/headphone/mic

Slim Tower

36.5 x 10 x 38.3 centimeters/14.4 x 3.95 x 15.1 inches



1. Monitor Sold Separately
2. 2-Button Scroll Mouse
3. Easy Access Keyboard
4. 2 USB 2.0, headphone and microphone
5. Optional diskette drive or 3.5" external bay
6. Expansion: 3 low-profile PCI slots (2 full-height if riser card is used), 1 3.5" internal bay and 1 5.25" external bay for CD-ROM, DVD-ROM, CD-RW or Combo Drives
7. 185W Power Supply
8. Expansion: 3 low-profile PCI slots (2 full-height if riser card is used), 1 3.5" internal bay and 1 5.25" external bay for CD-ROM, DVD-ROM, CD-RW or Combo Drives
9. Rear I/O: 4 USB 2.0, 1 standard serial port, 1 optional serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1 VGA, line-in/headphone/mic

At A Glance

- Intel® Pentium® 4 and Celeron™ processors
- Choice of operating systems:
  Microsoft Windows XP Professional
  Microsoft Windows XP Home
  Microsoft Windows 2000
  Mandrake 9.1 Linux
  Turbolinux 7.0
- Intel 865G chipset with Integrated Intel Extreme Graphics 2
- Integrated Broadcom NetXtreme Gigabit ethernet for HP
- 400, 533 and 800-MHz front side bus support
- Dual Channel Memory with 4 available color coded DIMM slots

- Intel HyperThread[1] support
- SMART III Ultra ATA/100 Hard Drives
- SoundMax Digital AC97 Integrated Audio with Internal Speaker
- Color coded cables for ease of use
- Maximum serviceability with tool-less covers, drives, PCA, PCI, and AGP slots
- Energy Star compliance with energy-saving features
- Protected by HP Services, including a 3-1-1, standard warranty. Terms and conditions vary by country. Certain restrictions and exclusions apply.

NOTE: [1] The Hyper-Threading feature is a new technology designed to improve performance of multi-threaded software products; please contact your software provider to determine software compatibility. Not all customers or software applications will benefit from the use of hyperthreading. Visit http://www.intel.com/info/hyperthreading/ for more information.

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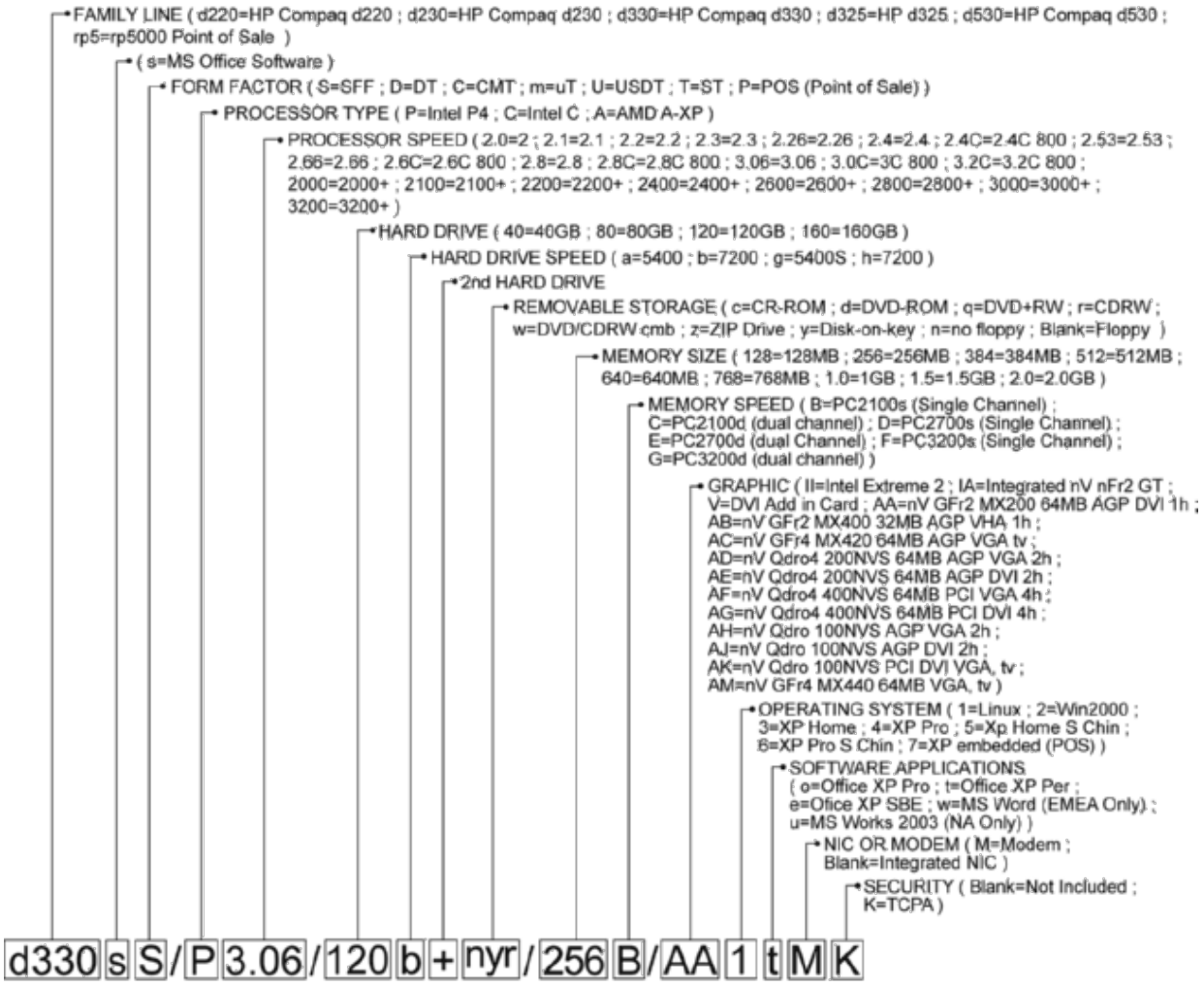
Standard Features - Select Models (localized by Regions)

HP Compaq Business Desktop d330


FAMILY LINE (d220=HP Compaq d220 ; d230=HP Compaq d230 ; d330=HP Compaq d330 ; d325=HP d325 ; d530=HP Compaq d530 ; rp5=rp5000 Point of Sale)
(s=MS Office Software)
FORM FACTOR (S=SFF ; D=DT ; C=CMT ; m=uT ; U=USDT ; T=ST ; P=POS (Point of Sale))
PROCESSOR TYPE (P=Intel P4 ; C=Intel C ; A=AMD A-XP)
PROCESSOR SPEED (2.0=2 ; 2.1=2.1 ; 2.2=2.2 ; 2.3=2.3 ; 2.26=2.26 ; 2.4=2.4 ; 2.4C=2.4C 800 ; 2.53=2.53 ; 2.66=2.66 ; 2.6C=2.6C 800 ; 2.8=2.8 ; 2.8C=2.8C 800 ; 3.06=3.06 ; 3.0C=3C 800 ; 3.2C=3.2C 800 ; 2000=2000+ ; 2100=2100+ ; 2200=2200+ ; 2400=2400+ ; 2600=2600+ ; 2800=2800+ ; 3000=3000+ ; 3200=3200+)
HARD DRIVE (40=40GB ; 80=80GB ; 120=120GB ; 160=160GB)
HARD DRIVE SPEED (a=5400 ; b=7200 ; g=5400S ; h=7200)
2nd HARD DRIVE
REMOVABLE STORAGE (c=CR-ROM ; d=DVD-ROM ; q=DVD+RW ; r=CDRW ; w=DVD/CDRW cmb ; z=ZIP Drive ; y=Disk-on-key ; n=no floppy ; Blank=Floppy)
MEMORY SIZE (128=128MB ; 256=256MB ; 384=384MB ; 512=512MB ; 640=640MB ; 768=768MB ; 1.0=1GB ; 1.5=1.5GB ; 2.0=2.0GB)
MEMORY SPEED (B=PC2100s (Single Channel) ; C=PC2100d (dual channel) ; D=PC2700s (Single Channel) ; E=PC2700d (dual Channel) ; F=PC3200s (Single Channel) ; G=PC3200d (dual channel))
GRAPHIC (II=Intel Extreme 2 ; IA=Integrated nV nFr2 GT ; V=DVI Add in Card ; AA=nV GFr2 MX200 64MB AGP DVI 1h ; AB=nV GFr2 MX400 32MB AGP VHA 1h ; AC=nV GFr4 MX420 64MB AGP VGA tv ; AD=nV Qdro4 200NVS 64MB AGP VGA 2h ; AE=nV Qdro4 200NVS 64MB AGP DVI 2h ; AF=nV Qdro4 400NVS 64MB PCI VGA 4h ; AG=nV Qdro4 400NVS 64MB PCI DVI 4h ; AH=nV Qdro 100NVS AGP VGA 2h ; AJ=nV Qdro 100NVS AGP DVI 2h ; AK=nV Qdro 100NVS PCI DVI VGA, tv ; AM=nV GFr4 MX440 64MB VGA, tv)
OPERATING SYSTEM (1=Linux ; 2=Win2000 ; 3=XP Home ; 4=XP Pro ; 5=Xp Home S Chin ; 6=XP Pro S Chin ; 7=XP embedded (POS))
SOFTWARE APPLICATIONS (o=Office XP Pro ; t=Office XP Per ; e=Ofice XP SBE ; w=MS Word (EMEA Only) ; u=MS Works 2003 (NA Only))
NIC OR MODEM (M=Modem ; Blank=Integrated NIC)
SECURITY (Blank=Not Included ; K=TCPA)
d330 s S/P 3.06/120 b + nyr/256 B/AA 1 t M K

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Standard Features - Custom Components

		Slim Tower	Desktop	Microtower
Processor and Speed – ne of the following	**Intel Celeron Processors** with 400-MHz Front Side Bus, 128KB L2 cache			
	2.0-GHz	X	X	X
	2.1-GHz	X	X	X
	2.2-GHz	X	X	X
	2.3-GHz	X	X	X
	2.4-GHz	X	X	X
	2.5-GHz	X	X	X
	2.6-GHz	X	X	X
	2.8-GHz	X	X	X
	Intel Pentium 4 Processors with 533-MHz Front Side Bus, 512KB L2 cache			
	2.4-GHz (without HyperThread)	X	X	X
	2.53-GHz (without HyperThread)	X	X	X
	2.66-GHz (without HyperThread)	X	X	X
	2.8-GHz (without HyperThread)	X	X	X
	3.06-GHz (with HyperThread)	X	X	X
	Intel Pentium 4 Processors with 800-MHz Front Side Bus, 512KB L2 cache with HyperThread			
	2.4-GHz	X	X	X
	2.6-GHz	X	X	X
	2.8-GHz	X	X	X
	3.0-GHz	X	X	X
	3.2-GHz	X	X	X
Operating System – One of the following	Microsoft Windows XP Professional SP1	X	X	X
	Microsoft Windows XP Home SP1	X	X	X
	Microsoft Windows 2000 SP3	X	X	X
	Microsoft Windows XP Professional SP1a	X	X	X
	Microsoft Windows XP Home SP1a	X	X	X
	Microsoft Windows 2000 SP4	X	X	X
	Mandrake 9.1 Linux – Light	X	X	X
	Turbolinux 7.0 – PRC only	X	X	X
	NOTE: Microsoft Windows NT 4.0 is not available on system, but Softpaq drivers are downloadable from http://www.hp.com.			
Hard Disk Drive – One of the following	40-GB 5400 rpm SMART III Ultra ATA/100	X	X	X
	40-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	80-GB 5400 rpm SMART III Ultra ATA/100	X	X	X
	80-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	160-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	250-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 40-GB 5400 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 40-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 80-GB 5400 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 80-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 160-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 250-GB 7200 rpm SMART III Ultra ATA/100	X	X	X

	Serial ATA/100 SMART Hard Drives			
	160GB Serial ATA Hard Drive (7200 rpm)	X	X	X
	80GB Serial ATA Hard Drive (7200 rpm)	X	X	X
	2nd hard drive, 160GB Serial ATA Hard Drive (7200 rpm)	X	X	X
	2nd hard drive, 80GB Serial ATA Hard Drive (7200 rpm)	X	X	X
Memory – One of the following	128-MB DDR Sync Dram PC2100 (266-Mhz) Non ECC (1x128)	X	X	X
	256-MB DDR Sync Dram PC2100 (266-Mhz) Non ECC (1x128)	X	X	X
	512-MB DDR Sync Dram PC2100 (266-Mhz) Non ECC (1x128)	X	X	X
	128-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 128)	X	X	X
	256-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 256)	X	X	X
	256-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 128)	X	X	X
	512-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 512)	X	X	X
	512-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 256)	X	X	X
	1-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 1GB)	X	X	X
	1-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 512)	X	X	X
	2-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 1GB)	X	X	X
	2-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (4 x 512)	X	X	X
	4-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (4 x 1GB)	X	X	X
	128-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (1 x 128)	X	X	X
	256-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (1 x 256)	X	X	X
	256-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 128)	X	X	X
	512-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (1 x 512)	X	X	X
	512-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 256)	X	X	X
	1-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (1x 1GB)	X	X	X
	1-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 512)	X	X	X
	2-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (4 x 512)	X	X	X
	2-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (2x 1GB)	X	X	X
	4-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (4x 1GB)	X	X	X
	NOTE: Memory speeds and sizes should not be mixed.			
Removable Storage	Optional 1.44-MB Diskette Drive	X	X	X
	16MB USB HP Drive Key (USB 1.0)	X	X	X
	64MB USB HP Drive Key (USB 1.0)	X	X	X
	128MB USB HP Drive Key (USB 1.0)	X	X	X

	48X CD-ROM Drive	X	X	X
	48X/32X/48X CD-RW Drive	X	X	X
	16X/40X DVD-ROM with +R Read	X	X	X
	48X/24X/48X/16X Combo CD-RW/DVD-ROM Drive	X	X	X
	Zip 250 for 3.5" drive bay	X		
	Zip 250 for 5.25" drive bay	X	X	X
Keyboard – One of the following	PS/2 Easy Access Keyboard	X	X	X
	PS/2 Easy Access Keyboard BG1650 compliant (gray)	X	X	X
	USB Easy Access Keyboard	X	X	X
	Wireless Keyboard with USB transceiver	X	X	X
Mouse – One of the following	PS/2 2-Button Scroll Mouse	X	X	X
	USB 2-Button Optical Mouse	X	X	X
	USB 2-Button Scroll Mouse	X	X	X
	Wireless Optical Mouse	X	X	X
Modem	Lucent controllerless 56K Win PCI Fax/Modem	X	X	X
Audio	SoundMax Digital AC97 Integrated Audio with Internal Speaker	X	X	X
NIC	Integrated Broadcom NetXtreme Gigabit ethernet for HP	X	X	X
	Intel Pro 1000 MT NIC	X	X	X
	HP WL220 Wireless 802.11b PCI Network Card	X	X	X
Miscellaneous	IEEE 1394 Firewire PCI (firewire 400)	X	X	X
	2nd serial port option	X	X	X
	PCMCIA adapter with PCI card (Japan only)	X	X	X
	Tower stand	X	X	
Graphics	Intel Extreme Graphics 2 (integrated with Intel 865G chipset)	X	X	X
	DVI ADD card for Extreme Graphics 2 full height PCI bracket		X	X
	DVI ADD card for Extreme Graphics 2 low profile PCI bracket	X		
	NVIDIA Quadro4 100NVS AGP (64MB, dual VGA) full height PCI bracket		X	X
	NVIDIA Quadro4 100NVS AGP (64MB, dual VGA) low profile PCI bracket	X		
	NVIDIA GeForce2 MX400 (32MB, VGA) full height PCI bracket		X	X
	NVIDIA GeForce2 MX400 (32MB, VGA) low profile PCI bracket	X		
	NVIDIA GeForce4 MX440/8 (64MB, 8XAGP, VGA, S-video) full height PCI bracket		X	X
	NVIDIA GeForce4 MX440/8 (64MB, 8XAGP, VGA, S-video) low profile PCI bracket	X		
	NVIDIA GeForce FX 128MB DDR w VGA & S-video (AGP8X) low profile	X		
	NVIDIA GeForce FX 128MB DDR w VGA & S-video (AGP8X) full height		X	X
Security	Solenoid/Hood Sensor	X	X	X

	Rear Port Control Bracket	X	X	X
	Chassis clamp locks with cable	X	X	X
	Chassis clamp lock without cable	X	X	X
Software	Norton AntiVirus 2003	X	X	X
	Norton AntiVirus 2004	X	X	X
	Microsoft Office XP Professional	X	X	X
	Microsoft Office XP Small Business Edition	X	X	X
	For information about Intelligent Manageability visit: http://www.compaq.com/im	X	X	X
	Corel WordPerfect Office 2002	X	X	X
	Microsoft Word 2002/Works2003		X	X
	Microsoft Works 7.0	X		X
	OpenOffice.org Office Suite		X	

NOTE: Office XP Small Business and Office Professional not available in all countries

NOTE: Norton AntiVirus includes FREE 60 day live update subscription.

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Standard Features

	Slim Tower	Desktop	Microtower
Operating Systems (choice)			
Microsoft Windows 2000 SP3	X	X	X
Microsoft Windows XP Professional SP1	X	X	X
Microsoft Windows XP Home SP1	X	X	X
Processor	Intel Pentium 4		
CPU Bus Speed Supported	800-MHz, 533-MHz or 400-MHz FSB		
Standard L2 Cache – Pentium 4	512-KB ECC depending on processor speed		
Chipset	Intel 865G		
Memory Expansion Slots	4 DIMMs	4 DIMMs	4 DIMMs
Memory Type Supported	DDR (ECC not supported by Chipset)		
Memory Speed Supported	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC		
Maximum Memory	4-GB	4-GB	4-GB
Network controller	Integrated Broadcom NetXtreme Gigabit ethernet for HP		
Graphics	Integrated Intel Extreme Graphics 2		
Audio	Integrated Digital Audio with SPDif 6-channel pass-through, Stereo Microphone, Active Noise Cancellation and Yamaha XG Lite Softsynth support		
PCI	3 low-profile, or 2 full-height (if riser card is used) (Riser card must be configured at the time of initial order)	3 full-length 32-bit PCI	3 full-length 32-bit PCI
AGP	1 low-profile 8XAGP	1 full-height, full-length 8XAGP	1 full-height, full-length 8XAGP

Bays	Total Bays = 3	Total Bays = 5	Total Bays = 6
Internal Bays	(1) internal hard drive bay (2nd HDD bay via external 3.5" bay)	(2) 3.5 inch hard drive bays	(2) 3.5 inch hard drive bays
External Bays	(1) full-length 5.25" (1) full-length 3.5"	(2) full-length 5.25" (1) full-length 3.5"	(2) full-length 5.25" (2) full-length 3.5"
Wireless Support	PCI card or external USB		
Front I/O	2 USB 2.0, headphone, and microphone		
Rear I/O	4 USB; 1 standard serial port, 1 optional serial port; 1 parallel port; PS/2 keyboard and mouse; 1 RJ-45; 1 VGA; rear line in/line out/mic in		
PS/2 Keyboard	1	1	1
PS/2 Mouse	1	1	1
VGA Adapter	1	1	1
Chassis Dimensions (H x W x D) Centimeters	36.5 x 10 x 38.3 (with stand)	13.8 x 38.7 x 45.6	36.8 x 17.5 x 41.4
Chassis Dimensions (H x W x D) Inches	14.4 x 3.95 x 15.1 (with stand)	5.45 x 15.25 x 17.95	14.5 x 6.88 x 16.31
System Weight	22.2 lbs (10.07 kg)	23.4 lbs (10.61 kg)	24.0 lb (10.89 kg)
System Volume	859 sq. in. (14.1 liters)	1492 sq. in. (24.45 liters)	1651 sq. in. (27.0 liters)
Shipping Weight	29 lb (13.15 kg)	33 lb (14.97 kg)	34 lb (15.42 kg)
Shipping Box Size	23.59 x 19.66 x 9.69 in (59.92 x 49.94 x 24.61 cm)	21.00 x 16.37 x 24.25 (53.34 x 41.58 x 61.60 cm)	22.20 x 13.00 x 23.50 in (56.39 x 33.02 x 59.69 cm)
Power Supply	185-watt passive PFC (user selectable 115V/230V)	240-watt passive PFC (user selectable 115V/230V)	240-watt passive PFC (user selectable 115V/230V)
Hard Drive Interfaces Supported	2 Ultra ATA/100 interfaces		
Hard Drive Controller (PCI) Supported	Ultra ATA 100/66/33		
Preinstalled Software			
Computer Setup Utility	X	X	X
Diagnostics for Windows	X	X	X
Microsoft Internet Explorer	X	X	X
NOTE: Windows NT 4.X drivers available on web – Softpaqs only.			

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After-Market Options

		Slim Tower	Desktop	Microtower	Part Number
Communications	**Wireless LAN**				
	HP USB Bluetooth transceiver	X	X	X	DN650A
	HP WL215 USB (802.11b) WiFi wireless LAN	X	X	X	DC758A
	HP WL220 PCI (802.11b) WiFi wireless LAN	X	X	X	DC756B
	HP WL500 PCI (802.11a/b/g) WiFi wireless LAN	X	X	X	tbd
	LAN				
	Broadcom NetXtreme Gb Ethernet PCI Adapter	X	X	X	DC194A
	Intel Pro/1000 MT Gb Ethernet PCI Adapter (Full height only)		X	X	DC193A
	Modems				
	PCI 56K Worldwide Controllerless WinModem	X	X	X	DC131A
	USB high speed 56K Fax modem	X	X	X	DE585A

IEEE 1394 Firewire PCI Card	1394 Firewire PCI Card		X	X	DE471A
	1394 Firewire PCI Card and Adobe Premiere Pro for XP		X	X	DK949A
Graphics	**Single head solutions**				
	Intel DVI AGP Digital Display (ADD) Card (rev B)	X	X	X	DD505A
	NVIDIA GeForce2 MX400 32MB DDR w VGA AGP (Low profile w/ bracket for SFF chassis)	X	X	X	DC155A
	NVIDIA GeForce2 MX200 64MB with DVI-I (Low profile w/ bracket for SFF chassis)	X	X	X	DC154A
	NVIDIA GeForce4 MX440/8 64MB DDR w VGA & Svideo (AGP8X)	X	X	X	DC663A
	NVIDIA GeForce FX 128MB DDR w VGA & Svideo (AGP8X)	X	X	X	DK906A
	Multi-display solutions				
	NVIDIA Quadro4 100NVS 64MB PCI DH with VGA, DVI-I and S-video	X	X	X	DC664A
	NVIDIA Quadro4 100NVS 64MB AGP Dual Head with VGA cables	X	X	X	DC665A
	NVIDIA Quadro4 100NVS DVI connector cables (for use with DC665A)	X	X	X	DC157A
	Cables				
	NVIDIA Quadro4 100NVS DVI Cables for use with DC665A		X	X	DC157A
	NVIDIA Quadro4 200NVS DVI Cables for use with 273304-B21		X	X	284281-B21
Hard Drives	**ATA/100 SMART Hard Drives**				
	40-GB ATA/100 Hard Drive (7200 rpm)	X	X	X	DC180A
	80-GB ATA/100 Hard Drive (7200 rpm)	X	X	X	DC181A
	160-GB ATA/100 Hard Drive (7200 rpm)	X	X	X	DC189A
	250-GB ATA/100 Hard Drive (7200 rpm)	X	X	X	DC516A
	Serial ATA/100 SMART Hard Drives				
	80-GB Serial ATA Hard Drive (7200 rpm)	X	X	X	DE705A
	160-GB Serial ATA Hard Drive (7200 rpm)	X	X	X	DE706A
	Cables				
	2 Device IDE Cable (required when adding a 2nd HDD to d330 slimtower)	X			DC183A
	SATA (required when adding a 3rd Party SATA Drive to any d330 system)	X	X	X	DL977A
Input/Output Devices	**Keyboards**				
	HP PS/2 Easy Access Keyboard (Carbonite/Silver)	X*	X	X	DC167B
	bulk pack, 12 each HP PS/2 Easy Access Keyboard (Carbonite/Silver)	X	X	X	DC167K
	HP USB Easy Access Keyboard (Carbonite/Silver)	X	X	X	DC168B
	HP USB Easy Access Smartcard Keyboard (Carbonite/Silver)	X	X	X	DC169B
	HP Wireless Easy Access Keyboard with Wireless/Optical Mouse	X	X	X	DC170B
	HP PS/2 Easy Access Keyboard (all grey) BG1650	X	X	X	DC636B

	Pointing Devices				
	HP PS/2 2-Button Scroll Mouse (Carbonite)	X*	X	X	DD440B
	Bulk pack, 100 each HP PS/2 2-Button Scroll Mouse (Carbonite)	X	X	X	DD440K
	HP USB 2-Button Scroll Mouse (Carbonite)	X	X	X	DD441B
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	X	X	X	DC172B
	HP Wireless/Optical Mouse	X	X	X	DC210B
	***NOTE:** Requires optional USB/PS2 legacy adapter.				
Memory (DIMMs)	**266-MHz (PC2100) DDR DIMMs Non-ECC**				
	1-GB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC166A
	512-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC165A
	256-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC164A
	128-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC163A
	333-MHz (PC2700) DDR DIMMs Non-ECC				
	1-GB DDR Synch Dram PC2700 (333-MHz) Non-ECC	X	X	X	DC341A
	512-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	X	X	X	DC340A
	256-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	X	X	X	DC339A
	128-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	X	X	X	DC338A
	400-MHz (PC3200) DDR DIMMs Non-ECC				
	1-GB DDR Synch Dram PC3200 (400-MHz) Non-ECC	X	X	X	DE468A
	512-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	X	X	X	DE467A
	256-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	X	X	X	DE466A
	128-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	X	X	X	DE465A
Monitors	HP s9500 CRT Monitor (19")	X	X	X	P9010A#ABA
Multimedia	Harman/Kardon Satellite speaker pair (EMEA only)	X	X	X	DL983A
	JBL Platinum Series Speakers (NA & Japan only)	X	X	X	DE893B
	Labtec Spin-22 speakers	X	X	X	DC186A
	JBL Platinum Series Speakers - Carbon (Monitors accessory kit)	X	X	X	
	HP Desktop Access Center (aka Comm station II)	X	X	X	DK985A
	PC Comm station (no keyboard or mouse)	X	X	X	P8814A
	PC Comm station pro (with wireless keyboard and optical mouse)	X	X	X	P8815A
Optical Drives	**DVD-ROM Drive**				

	16X/40X DVD-ROM w/ +R read	X	X	X	DC151B
	CD-ROM Drive				
	48X Max CD-ROM Drive	X	X	X	DC143B
	CD-RW Drive				
	48X/24X/48X CD-RW Drive	X	X	X	DC196B
	48X/32X/48X CD-RW Drive	X	X	X	DL975B
	Combo Drive				
	48X/24X Combo DVD-ROM/CD-RW Drive	X	X	X	DC197B
	48X/32X Combo DVD-ROM/CD-RW Drive	X	X	X	DL976B
	DVD+R/+RW Drive				
	4X DVD+R/+RW Drive (carbonite)	X	X	X	DC517B
	4X DVD+R/+RW Drive (carbonite) with Roxio 6.1 (North America Only)	X	X	X	DC517R
	8X DVD+R/+RW Drive (carbonite)	X	X	X	DQ820B
Removable Storage	**Diskette Drives and Media**				
	16-MB HP Drive Key (USB 1.1)	X	X	X	DC192B
	64-MB HP Drive Key (USB 1.1)	X	X	X	DC191B
	128-MB HP Drive Key (USB 1.1)	X	X	X	DC190B
	128-MB HP Drive Key (USB 2.0)	X	X	X	DQ819B
	256-MB HP Drive Key (USB 2.0)	X	X	X	DL973B
	Internal and USB Diskette Drives				
	1.44-MB USB Diskette Drive – External (Carbonite)	X	X	X	DC141B
	1.44-MB Internal Diskette Drive	X	X	X	DS710B
	Tape Drives and Media				
	Zip 250 Drive (Carbonite)	X	X	X	DC140B
	Zip 250 Media 4-Pack	X	X	X	DC138A
	Zip 750 Drive (Carbonite)	X	X	X	DC518B
	Zip 750 Media 3-Pack	X	X	X	DC519A
	TR5 10/20 GB IDE Tape Drive (Carbonite)	X	X	X	DC139B
	TR5 10/20 GB Data Cart (3-Pk)	X	X	X	DC137A
	TR5 10/20 GB Data Cart (1-Pk)	X	X	X	C4435A
Security	Rear port controller cover	X			DE897A
	Rear port controller cover		X		DE898A
	Rear port controller cover			X	DE899A
	Solenoid hood lock	X			DE472A
	Solenoid hood lock		X		DK415A
	Solenoid hood lock			X	DK414A
	Kensington Compaq security lock Ind – All	X	X	X	DC368A
	Chassis clamp lock, universal, no cable	X	X	X	DE817A
	HP Business PC Security Lock Kit	X	X	X	PV606AA
	Wall mount/security sleeve	X			DK412A
Brackets/Stands	5.25" blank bezel kit (Carbonite 50/PK)	X	X	X	DC177B
	3.5" bezel kit (diskette drive, hard drive, ZIP)	X			DF783B
	3.5" bezel kit (diskette drive, hard drive, ZIP)		X		DF784B
	3.5" bezel kit (diskette drive, hard drive, ZIP)			X	DF782B

	Front bezel kit, unpainted, Blue Angel compliant	X			DN654B
	Front bezel kit, unpainted, Blue Angel compliant		X		DN647B
	Front bezel kit, unpainted, Blue Angel compliant			X	DN644B
Brackets/Stands	Tower Stand (Carbonite)	X			DE870A
	Tower Stand (Carbonite) 50-stand bulk-pack	X			DE999A
	Tower stand (Carbonite)		X		DE621B
	Tower Stand (Carbonite) 100-unit bulk pack		X		DC620B
Other Devices	2nd serial port	X	X	X	DP443A
	Bulk-Pack (160 units) 2nd serial port	X	X	X	DP443K
	PCI to PCMCIA Universal adapter for 3.5-inch bay	X	X	X	DC680B

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Memory

865G chipset
DDR SYNCH DRAM Non-ECC Memory
It is not necessary to add memory in pairs. Memory upgrades are accomplished by adding single or multiple DIMMs of the same or varied sizes. This chart does not represent all possible memory configurations. The Intel 865G chipset supports non-ECC 266MHz (PC2100), 333MHz (PC2700) and 400MHz (PC3200) DDR memory.

For best performance, add in pairs, add in different channel in matching slots (color coded), and do not mix speeds.

Maximum Memory (Slim Tower, Desktop, and Microtower)
Supports up to 4-GB of DDR SYNCH DRAM.

Possible Memory Configurations (slim tower, desktop, and microtower)
not all memory configurations possible are represented below

DIMM Size	Slot			
	Channel A		Channel B	
	1	2	3	4
128-MB	128-MB			
256-MB	128-MB		128-MB	
512-MB	512-MB			
512-MB	256-MB		256-MB	
1-GB	1-GB			
1-GB	512-MB		512-MB	
2-GB	1-GB		1-GB	
2-GB	512-MB	512-MB	512-MB	512-MB
4-GB Maximum	1-GB	1-GB	1-GB	1-GB

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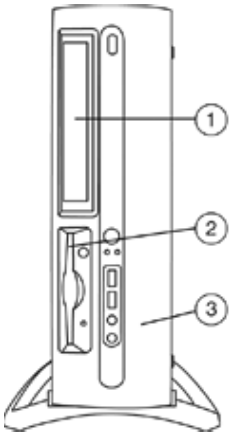
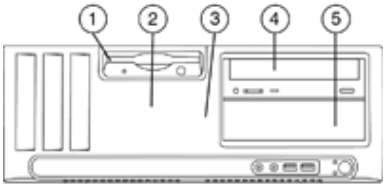
Storage

Storage

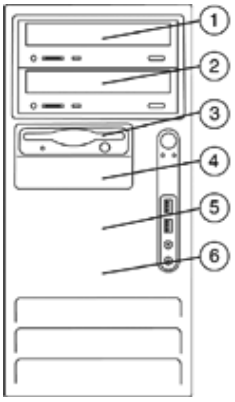
Slim Tower



Desktop



Microtower



	Quantity Supported	Position Supported	Controller
Slim Tower			
Diskette Drive	1	2	Diskette
5.25" Storage Bays	1	1	IDE
3.5" Storage Bay	2	3	IDE
Desktop			
Diskette Drive	1	1	Diskette
5.25" Storage Drive Bays	2	4, 5	IDE
3.5" Storage Drive Bays	2	2, 3	IDE
Microtower			
Diskette Drive	1	3	Diskette
5.25" Storage Drive Bays	2	1, 2	IDE
3.5" Storage Drive Bays	3	4, 5, 6	IDE

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Technical Specifications

Base Unit Contents	Slim Tower	Desktop	Microtower
Processor	Intel Pentium 4 Socket N – 478	Intel Pentium 4 Socket N – 478	Intel Pentium 4 Socket N - 478
CPU Bus Speed Supported	800-MHz, 533-MHz or 400-MHz FSB	800-MHz, 533-MHz or 400-MHz FSB	800-MHz, 533-MHz or 400-MHz FSB
Coprocessor	Integrated	Integrated	Integrated
CPU Package	FC-PGA2	FC-PGA2	FC-PGA2
Standard L2 Cache – Pentium 4	512-KB ECC depending on processor speed	512-KB ECC depending on processor speed	512-KB ECC depending on processor speed
L2 Cache Architecture/ Speed – Pentium 4	Full core clock speed	Full core clock speed	Full core clock speed
Cache Upgradeable – Pentium 4 and Celeron	Not upgradeable – Integrated into Processor	Not upgradeable – Integrated into Processor	Not upgradeable – Integrated into Processor
System board with Intel 865G Chipset with Integrated Intel Extreme Graphics 2	X	X	X

Cables	ATA Cable	ATA Cable	ATA Cable
Quick Setup Poster	X	X	X
Product Documentation on CD	X	X	X
Operating System CD	X	X	X
Restore CD	X	X	X
Power Cord	X	X	X
Keyboard	X (PS/2)	X (PS/2)	X (PS/2)
Mouse	X (PS/2)	X (PS/2)	X (PS/2)
Memory Expansion Slots	4 DIMMs	4 DIMMs	4 DIMMs
Memory Type Supported	DDR (ECC not supported by Chipset)	DDR (ECC not supported by Chipset)	DDR (ECC not supported by Chipset)
Memory Speed Supported	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC
Maximum Memory	4-GB	4-GB	4-GB
Memory Parity	Not Needed for non-ECC	Not Needed for non-ECC	Not Needed for non-ECC
ECC Memory	Not Supported by chipset	Not Supported by chipset	Not Supported by chipset
Serial Presence Detect Support	Supported	Supported	Supported
PCI	3 low-profile, or 2 full-height (if riser card is used) PCI (Riser card must be configured at the time of initial order)	3 full-length PCI	3 full-length PCI
AGP	1 low-profile AGP 8X	1 full-length, full-height 8X AGP	1 full-length, full-height 8X AGP
Bays	Total Bays = 3	Total Bays = 5	Total Bays = 6
Internal	(1) 3.5 inch ATA Hard Drive (2nd HDD bay via external 3.5" bay)	(2) 3.5 inch ATA Hard Drive	(2) 3.5 inch ATA Hard Drive
External:	(1) 5.25 inch full-length (1) 3.5 inch full length	(2) 5.25 inch full-length (1) 3.5 inch full length	(2) 5.25 inch full-length (2) 3.5 inch full length
Wireless Support	PCI card or external USB	PCI card or external USB	PCI card or external USB
Parallel Port	1	1	1
Serial Port	1 standard with 2nd optional	1 standard with 2nd optional	1 standard with 2nd optional
USB Keyboard	Optional	Optional	Optional
USB Mouse	Optional	Optional	Optional
PS/2 Keyboard	1	1	1
PS/2 Mouse	1	1	1
VGA Adapter	1	1	1
Chassis Dimensions (H x W x D) Centimeters	10 x 36.5 x 38.3	13.8 x 38.7 x 45.6	36.8 x 17.5 x 41.4
Chassis Dimensions (H x W x D) Inches	3.95 x 14.4 x 15.1	5.45 x 15.25 x 17.95	14.5 x 6.88 x 16.31
Hard Drive Interfaces Supported	2 ULTRA ATA/100 interfaces	2 ULTRA ATA/100 interfaces	2 ULTRA ATA/100 interfaces
Hard Drive Controller (PCI) Supported	ULTRA ATA 100/66/33	ULTRA ATA 100/66/33	ULTRA ATA 100/66/33

System Board	**Slim Tower**	**Desktop**	**Microtower**
Architecture	P4/PCI/AGP 8X	P4/PCI/AGP 8X	P4/PCI/AGP 8X
Chipset	Intel 865G Chipset	Intel 865G Chipset	Intel 865G Chipset
I/O Controller	SMSC LPC47B387	SMSC LPC47B387	SMSC LPC47B387
System Board Form Factor	UATX	UATX	UATX
Processor Socket - 478 Pin ZIF	X	X	X
DIMM Connectors (2.5V)	4	4	4
AGP Connector (1.5V)	1 (8X)	1 (8X)	1 (8X)
Integrated Intel Extreme Graphics 2	X	X	X
PCI Connectors	3 low profile, or 2 full height with riser card (Riser card must be configured at the time of initial order)	2 full height, full length	2 full height, full length
Flash ROM	X	X	X
Audio (AC97 Integrated Audio)	X	X	X

CD ROM IN (Audio)	X	X	X
AUX IN (Audio)	X	X	X
Clear CMOS Button	X	X	X
CPU Fan Header	X	X	X
Chassis Fan Header	X	X	X
Chassis Speaker Header	X	X	X
CMOS Battery Holder - Lithium	X	X	X
Hood Lock Header	X	X	X
Hood Sensor Header	X	X	X
Integrated Broadcom NetXtreme Gigabit ethernet for HP	X	X	X
Wake-On-Lan®	X	X	X
ASF 1.0 (Alert Standard Format)	X	X	X
Power Supply Header	X	X	X
Power Switch, Power LED & Hard Drive LED Header	X	X	X
Password Clear Header	X	X	X
Riser Connector	X	-	-
SCSI LED Header	X	X	X

Chassis	**Slim Tower**	**Desktop**	**Microtower**
Color	Carbonite/Silver	Carbonite/Silver	Carbonite/Silver
System Board Form Factors Supported	Standard m ATX	Standard m ATX	Standard m ATX
Cooling Solutions Supported	X	X	X
Power Supply Fan (Variable Speed)	X	X	X
Processor Fan-Heatsink (Variable Speed)	X	X	X
Chassis Fan	X	-	X
Internal Speaker	X	X	X
Security Locks Supported	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)

Unit Environment and Operating Conditions	**Slim Tower**	**Desktop**	**Microtower**
General Unit Operating Guidelines • Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range. • Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow. • Never restrict airflow into the computer by blocking any vents or air intakes. • Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air. • Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow. • If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply. • The computer is designed to operate continuously (24 x 7) if needed, provided that the operating guidelines listed above are met.			
Temperature Range	Operating Temperature: 50° to 95° F (10° to 35° C) Non-operating Temperature: 22° to 140° F(30° to 60° C)		
Relative Humidity	Operating Humidity 10% to 90% (non condensing at ambient) Non-operating Humidity 5% to 95% (non condensing at ambient)		
Maximum Altitude (unpressurized)	10,000 ft (3048 m) 30,000 ft (9144 m)		

NOTE: Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

Power Supply	Slim Tower	Desktop	Microtower
Power Supply	185 Watt Power Supply – PFC (115v/230v line switch)	240 Watt Power Supply – PFC (115v/230v line switch)	240 Watt Power Supply – PFC (115v/230v line switch)
Maximum Rated Power	185 Watt	240 Watt	240 Watt
Full Ranging Input (No Line Select Switch)	-	-	-
Active Power Factor Correction (APFC) (Input Current is nearly 1/2 a non-APFC PS)	-	-	-
Passive Power Factor Correction (PFC)	X	X	X
Operating Voltage Range	90 – 132/180 – 264 VAC	90 – 132/180 – 264 VAC	90 – 132/180 – 264 VAC
Rated Voltage Range	100 – 127/200-240 VAC	100 – 127/200-240 VAC	100 – 127/200-240 VAC
Rated Line Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Operating Line Frequency Range	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz
Rated Input Current	5A/2.5A	6A/3A	6A/3A
Heat Dissipation	Typical 256 btu/hr (65 kg-cal/hr) Maximum 971 btu/hr (245 kg-cal/hr)	Typical 256 btu/hr (65 kg-cal/hr) Maximum 1260 btu/hr (318 kg-cal/hr	Typical 256 btu/hr (65 kg-cal/hr) Maximum 1260 btu/hr (318 kg-cal/hr
Power Supply Fan	60 mm variable speed	92 mm variable speed	92 mm variable speed
Processor Fan			
Energy Star Compliant	X	X	X
Power Management			
Screen Blanking			
Hard Disk 'Idle' Mode			
System Idle Mode			
Cache Memory Power-Down			
Blue Angel Compliant (<5w in S5-- Power Off)	X	X	X
FEMP Standby Power Compliant (<2W in S5 – Power Off) **NOTE:** User must disable the "S5 Wake on LAN" in the F10 setup (default is enabled)	X	X	X
Power Consumption in ES Mode - Suspend to RAM (S3) (Instantly Available PC)	2.5W to 3W	2.5W to 3W	2.5W to 3W
Processor/Cache Memory Power -Down (S3)	< 3W	< 3W	< 3W
CD-Rom Spins Down when not in use			
Environmental and Mechanical Engineering Support Center	http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm		

ROM Features	Description	Slim Tower	Desktop	Microtower
Instantly Available PC (Suspend to RAM - S3)	Allows for very low power consumption with quick resume time	X	X	X
ROM Based F10 Setup	Review and customize BIOS settings	X	X	X
Remote System Installation via F12 (PXE) (Remote Boot from Server)	Allows a new or existing system to boot over the network and download software, including the operating system	X	X	X
System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS	X	X	X

CMOS Archive and CMOS Restore	Holding down the power button restores the last known good BIOS settings (from previous restart) if the system gets into a locked state after configuration changes are made	X	X	X
Auto Setup when New Hardware Installed	System automatically detects addition of new hardware	X	X	X
Serial, Parallel, USB, Audio, Network, Enable/ Disable Port Control	Enable or disables serial, parallel, USB, audio, and network ports	X	X	X
Removable Media Write/ Boot Control	Prevents ability to boot from removable media on supported devices (and can disable writes to media on supporting devices)	X	X	X
Network Server Mode	Allows for secured keyboard-less operation	X	X	X
Power-On Password	Prevents an unauthorized person from booting up the computer	X	X	X
Setup Password	Prevents an unauthorized person from changing the system configuration	X	X	X
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human readable file. SSM and Repset.exe utility can then replicate these settings on machines being deployed without entering ROM-based F10 setup	X	X	X
Memory Change Alert (Requires Insight Management Agent)	Alerts management console if memory is removed or changed	X	X	X
Thermal Protection	Protects system components from thermal damage. If excessive temperatures are encountered the computer automatically shuts down without warning before hardware component damage occurs.	X	X	X
Thermal Alert (Requires Insight Management Agent)	Monitors the temperature state within the chassis. Three modes: • NORMAL – normal temperature ranges • ALERTED - excessive temperatures are detected. Raises a flag so action can be taken to avoid shutdown or provide for a smoother system shutdown • SHUTDOWN – excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs	X	X	X
Cover Removal Alert (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the computer. Can be set to one-of-three modes: • DISABLED - user/network administrator does not want to be made aware of the computer hood removal • NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer • UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot	-	Optional	Optional
Master Boot Record Security	Detects changes to MBR and optional restoration, useful in protecting from viruses	X	X	X
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	X	X	X
Remote Wakeup	• System administrators can power on, restart, and power off a client computer from a remote location. • Enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.	X	X	X

ACPI (Advanced Configuration and Power Management Interface)	• Allows the system to wake from a low power mode • Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system	X	X	X
Keyboard-less Operation	The system can be operated without a keyboard	X	X	X
SMBIOS	System Management BIOS, previously known as DMI BIOS, for system management information	X	X	X

System Environmental Specs	Description	Slim Tower	Desktop	Microtower
Acoustics: Advanced Power Management - On	-----			
Operating (*Using 11ms half-sine shock pulse)	-----			
Non-Operating (*Using 11ms half-sine shock pulse)	-----			
Operating	-----			
Non-Operating	-----			
Operating (maximum wet bulb temp., non-condensing)	-----			
Non-operating (maximum wet bulb temp., non-condensing)	-----			
Operating	-----			
Non-operating (Maximum allowable altitude change rate is 1500 ft/min)	-----			
Environmental and Mechanical Engineering Support Center (EMESC) - Intranet Web Site only	http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm			

Software	Description	Slim Tower	Desktop	Microtower
Preinstalled Software				
Windows 3.1		-	-	-
Windows 95		-	-	-
Windows 98		-	-	-
Windows NT 4.X (drivers available on web – Softpaqs only)		-	-	-
Microsoft Windows 2000 SP3		X	X	X
Microsoft Windows XP Professional SP1		X	X	X
Microsoft Windows XP Home SP1		X	X	X
Computer Setup Utility		X	X	X
Diagnostics for Windows		X	X	X
Microsoft Internet Explorer		X	X	X
Pre-loaded Software				
Altiris Deployment Solution Agent	Downloadable from http://www.altiris.com/	X	X	X
Insight Management Agent	Downloadable from http://www.hp.com/go/easydeploy	X	X	X
Local Diskette Boot		X	X	X
Network Boot		X	X	X
Disk-on-Key Boot		X	X	X

Initial Configuration	Description	Slim Tower	Desktop	Microtower

and Deployment				
HP Client Manager Software (free)	A FREE solution that provides asset tracking, alerting, diagnostics, and SoftPaq BIOS and driver distribution for business desktops, notebooks, and workstations. HP Client Manager Software "plugs" into the Altiris Notification Server infrastructure to provide value-add information that can be leveraged by all Altiris solutions	X	X	X
Altiris Solutions (30-day trial version)	A suite of solutions that focus on business needs in four areas, saving time and freeing resources to address other crucial issues: • Deployment & Migration • Software & Operations Management • Inventory & Asset Management • Help Desk & Problem Resolution	X	X	X
PC Transplant Pro (30-day trial version)	Makes transferring the files and settings that make your PC unique quick and intuitive process	X	X	X
System Software Manager (free)	Detects and updates BIOS, device drivers, and management agent versions on your networked PCs	X	X	X
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human readable file. Repset.exe utility and SSM can then replicate these settings on machines being deployed without entering ROM-based F10 setup	X	X	X
Insight Manager	-----	X	X	X
Support Software CD	-----	X	X	X
Software Restore CD	Restores computer to its original factory shipping image	X	X	X
Asset Tag	• Repository for storing company-specific property asset numbers for easy tracking • Initially set equal to the system serial number • Stored in a protected section of non-volatile memory that can be accessed and modified with the F10 Setup program	X	X	X
DIMM Serial Presence Detect	Detects whether or not memory DIMMs are present and their type	X	X	X
Hard drive serial number, model, and manufacturer	Hard drive manufacturer, model, and serial number is stored in the hard drive firmware and reported in ROM-based F10 setup	X	X	X
Monitor serial number, model & manufacturer	-----	X	X	X
System serial number, model, & manufacturer	System serial number, model, & manufacturer stored in a non-volatile memory and can be retrieved with management SW or viewed in ROM-based F10 setup	X	X	X
ROM revision levels	• Identifies system ROM revision levels and reports in ROM-based F10 setup • Version is stored in an industry standard memory location (SMBIOS) so that management SW applications can use and report this information	X	X	X
System board revision level	• Allows management SW to read the revision level of the system board • Revision level is digitally encoded into the hardware and cannot be modified	X	X	X
Memory Change Alert	Alerts management console if memory is removed or changed	X	X	X
Ownership Tag	A user-defined string stored in non-volatile memory that is displayed in the BIOS splash screen	X	X	X

Security Features	**Description**	**Slim Tower**	**Desktop**	**Microtower**
Smart Cover Lock	Remote operated system lock	X	X	X
Smart Cover Sensor (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the computer. Can be set to one-of-three modes: • DISABLED -user/network administrator does not want to be made aware of the computer hood removal	X	X	X

	• NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer • UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot			
Mechanical Hood Security Provision	Security Loop	X	X	X
Kensington Lock Support	Kensington lock slot on the chassis	X	X	X
Cable Lock Provision	Physically secure computer hardware from theft	X	X	X
Serial, Parallel, USB Enable/Disable	Enable or disable serial, parallel or USB ports and hide them form the operating system	X	X	X
Port Control	Attaches to back of chassis covering external ports and thereby preventing unauthorized access; also aids in cable management	X	X	X
Removable Media Write/ Boot Control	Prevents the computer from being booted from removable media on supported devices (and can disable writes to media)	X	X	X
Power-On Password	Prevents an unauthorized person from booting up the computer	X	X	X
Setup Password	Prevents an unauthorized person from changing the system configuration	X	X	X

Fault Notification and Recovery	**Description**	**Slim Tower**	**Desktop**	**Microtower**
SMART Hard Drives, Fault Notification, & Prefailure Warranty	• Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted • Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count • By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure	X	X	X
Proactive Backup	• Initiates an automatic backup of the computers SMART hard (to a local tape device for example) when an imminent failure is predicted • Prevents data loss and end-user down time due to a failing hard drive	X	X	X
Surge Tolerant Full Ranging Power Supply	Withstands power surges up to 2000V	X	X	X
Thermal Sensor	Monitors the temperature within the chassis • NORMAL –normal temperature ranges • ALERTED - excessive temperatures are detected. Raises a flag so that appropriate action can be taken to avoid shutdown or provide for a smoother system shutdown • SHUTDOWN – excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs	X	X	X
Ultra ATA Integrity Monitoring (CRC Checking)	Provides data transfer verification and proactive notification of hard drive data transmission problems with recommendations for enhancing system performance. It detects all the following errors types: • single bit errors • double bit errors • an odd number of errors • error bursts up to 32-bits long	X	X	X

System Software Updating	Description	Slim Tower	Desktop	Microtower
Active Update	• Advanced web-based application that provides proactive notification and automatic download of software updates for most Compaq commercial products • Updates may be deployed using Compaq or third-party deployment tools • Software subscription filters automatically identify and download only relevant content based on the user-defined subscription information	X	X	X
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	X	X	X
Remote Wakeup/ Remote Shutdown	• System administrators can power on, restart, and power off a client computer from a remote location. • Enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.	X	X	X
Support Software CD & WWW	-----	X	X	X

Other Features	Description	Slim Tower	Desktop	Microtower
ACPI-Ready Hardware	Advanced Configuration and Power Management Interface (ACPI). • Allows the system to wake from a low power mode. • Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system	X	X	X
SMBIOS	System Management BIOS, previously known as DMI BIOS, for system management information	X	X	X
Wired for Management Support	Intel-driven, industry-wide initiative to make Intel architecture-based PCs, servers and mobile computers more inherently manageable right out of the box and over the network	X	X	X
Dual-State Power Button	Power button acts as either an on/off button and suspend-to-sleep button	X	X	X

Serviceability Features of System	Description	Slim Tower	Desktop	Microtower
Dual Color Power LED on Front of Computer (Indicates Normal Operations and Fault Conditions)	-----	X	X	X
Diagnostic LED Explanation Table	Number of 1-second red LED blinks followed by 2-second pause, then repeats: 2-processor thermal protection activated 3-processor not installed 4-power supply failure 5-memory error 6-video error 7-PCA failure (ROM detected failure prior to video) 8-invalid ROM, bootblock recover mode	X	X	X
System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS.	X	X	X
Compaq Diagnostic for Windows Software	-----	X	X	X
Compaq Configuration Record SW	-----	X	X	X
Over-Temp Warning on Screen (Requires IM Agents)	-----	X	X	X

Compaq OS CD (Restore OS CD)	Restores computer to its original factory shipping image	X	X	X
Compaq Restore CD	Restores the computer to its original factory shipping image	X	X	X
Flash ROM	-----	X	X	X
3.3V Aux Power LED on System PCA	-----	X	X	X
Dual Function 5V Aux Power LED (ON)/PS_ON LED (OFF) on System PCA	-----	X	X	X
Diagnostic Power Switch LED on board	-----	X	X	X
Clear Password Jumper	-----	X	X	X
Clear CMOS Button	-----	X	X	X
CMOS Battery Holder for easy Replacement	-----	X	X	X
Processor ZIP Socket for easy Upgrade	-----	X	X	X
DIMM Connectors for easy Upgrade	-----	X	X	X
NIC LEDs (integrated) (Green & Amber)	Used to determine NIC status	X	X	X

Serviceability Features of Chassis	**Description**	**Slim Tower**	**Desktop**	**Microtower**
Dual Color Power & HD LED - To Indicate Normal Operations and Fault Conditions	-----	X	X	X
ASF 1.0 support (Alert Standard Format)	Industry-standard specification for network alerting in operating system-absent environments	X	X	X
Smart Cover Sensor (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the compute. Can be set to one-of-three modes: • DISABLED - user/network administrator does not want to be made aware of the computer hood removal • NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer • UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot	-	Optional	Optional
Smart Cover Lock	Remote operated system lock	- cover can be locked with security loop or kensington	X (Option)	X (Option)
Front power switch	-----	X	X	X
Green Pull Tabs, and Quick Release Latches for easy Identification	-----	X	X	X
Color coordinated cables and connectors		X	X	X
System memory can be upgraded without removing the system board or any internal components	Eases memory upgrading	X	X	X
Tool-less Hood Removal	Eases entry to the chassis without use of special tools	X (single latch)	X (2 thumbscrews)	X (2 thumbscrews)
Tool-less Hard Drive, CD & Diskette Removal	-----	X	X	X

Tool-less System Board Removal	No special tools required for system board removal or maintenance	X	X	X
Universal Tower Stand	Necessary to safely orient as a tower	X(Standard)	-	-
Drive Self Tests (DPS)	• Drive Protection System • A diagnostic hard drive self test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user. • Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an evaluation on whether the hard drive is the source of the problem and needs to be replaced. • The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures	X	X	X
DPS Access through F10 Setup during Boot		X	X	X
DPS Access through Diagnostics for Windows		X	X	X
SMART Technology (Self-Monitoring, Analysis and Reporting Technology)	• Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted • Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count • By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure	X	X	X
SMART I - Drive Failure Prediction		X	X	X
SMART II - Off-Line Data Collection		X	X	X
SMART III - Off-Line Read Scanning with Defect Reallocation		X	X	X

Service and Support	On-site Warranty and Service **NOTE 1** This three-year (3-1-1), limited warranty and service offering delivers three years of parts and one year of both labor and on-site repair. Response time is next business-day **NOTE 2** and includes free telephone support **NOTE 3** 24 x 7. Global coverage **NOTE 2** ensures that any product purchased in one country and transferred to another non-restricted country will remain fully covered under the original warranty and service offering.
	On-site Warranty **NOTE 1** This one-year (1-1-1), limited warranty delivers one year of on-site, next business-day **NOTE 2** service for parts and labor and includes free telephone support **NOTE 3** 24 x 7. Global coverage **NOTE 2** ensures that any product purchased in one country and transferred to another non-restricted country will remain fully covered under the original warranty and service offering. One-year onsite and labor are not available in all countries.
	NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply
	NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country
	NOTE 3: Technical telephone support applies only to HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries

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Technical Specifications - Audio

AC97 Integrated Audio	**Type**	Integrated ADI 1981B
	AC97 Stereo Codec	Yes
	FM Synthesis Support	Yamaha XG Lite
	Sound Blaster Compatibility	Yes

Audio Jacks	Mic-In (20-K ohm Input Impedance); Rear Stereo and Front Analog Mic ports available Line-In (12-K ohm Input Impedance) Headphone-Out (2.5 Ohms Output Impedance, expects at least a 32 ohm load)
NOTE: *Internal Speaker Amplifier is for Internal Speaker only. External Speakers need to be powered externally.	
Sampling	7 kHz – 48 kHz
Wavetable Syntheses (software)	GM and FM Midi Support, Direct Music and Down Loadable Soundset (4 Meg DLS Level 1 and 2 Support)
3D Positional Sound	No
Digital Audio via (S/PDIF)	Yes
Analog Audio:	Yes
Number of Channels on Line-Out (mono/stereo)	Stereo (Left & Right channels)
Internal Audio Speaker Power Rating	3W
Internal Speaker	Yes
Hardware Equalizer for Internal Speaker	Fixed 7 Band Parametric DigitalEQ
External Speaker Jack (Headphone/Line-Out)	Yes

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Technical Specifications - Communications

Broadcom NetXtreme Gigabit Ethernet	**Connector**	RJ-45
	Controller	Broadcom 5782 PCI LAN Controller
	Memory	Integrated 96Kb frame buffer memory
	Data rates supported	10/100/1000 Mbps
	Compliance	IEEE 802.1A, 802.1P, 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCI 2.2
	Data path width	32-bit, 33/66 MHz bus interface
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	1.48 watts @ +3.3V AUX supply with 5V tolerance
	Boot ROM support	Yes
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T, 1000 Mbps
	Environmental	**Operating temperature** 32° to 131° F (0° to 55° C) **Operating humidity** 85% at 131° F (55° C)
	Dimensions	4.7 x 2.0 x 0.08 inches (12 x 5 x 1.9 cm)
	Operating system driver support	Microsoft Windows NT 4.0, Microsoft Windows 98, Microsoft 2000, Microsoft XP, Linux 2.2, Linux 2.4

	Management capabilities	ACPI, WOL and DMI 2.0, PXE 2.0, WfM 2.0, Broadcom mgmt utility
	Alerting	ASF 1.0 with Remote Managemeent and Control Protocol (RMCP) disabled

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Technical Specifications - Graphics

Integrated Intel Extreme Graphics 2	**3D/2D Controller**	Support is fully compliant with Microsoft standard API such as Direct Draw, GDI/GDI+ and Direct Show
	VGA Controller	Integrated
	Bus Type	AGP8X (Internal graphics is disabled if external AGP Graphics card is installed)
	RAMDAC	Integrated 350-MHz DAC
	Memory	Graphics memory is shared with system memory. Graphics memory usage can vary from 8 – 64MB depending on the amount of system memory installed and system load. 16MB is pre-allocated for graphics use at system boot time. Additional memory is allocated for graphics using Intel's Dynamic Video Memory Technology (DVMT) to balance the optimum amount of memory between graphics and other system use. With a 128MB system, graphics memory usage will be 8MB -32MB depending on system load. With 256MB or more, graphics memory usage will be 8MB - 64MB depending on system load.
	Controller Clock Speed	266 MHz
	Overlay Planes	Single Overlay support with 5x3 filtering
	Max Color Depth	32-bits/pixel
	Maximum Vertical Refresh Rate	85Hz at up to 1920 x 1440, 75Hz at 2048 x 1536. Varies with mode and configuration. See table below
	Multi-display Support	Support for one CRT via the motherboard's VGA connector. Support for an additional DVI-D display via the optional DVI ADD card. Intel's Dual Display Twin mode allows for displaying the same image on both the displays.
	Operating Systems	Microsoft Windows XP and Windows 2000
	Graphics API Support	Complete Microsoft DirectX® support, including DirectX 8.1; complete OpenGL 1.3 support. Compatible with DirectX 9.

Resolutions Supported (At various color depths & memory configurations) (**NOTE:** Refresh rates higher than 85Hz may be obtainable in some modes and configurations but are not recommended)

Resolution	**Maximum Refresh Rate** (Hz) **DR266 Single Channel** (8/16/32 bits/pixel)	**Maximum Refresh Rate** (Hz) **DDR 266 Dual/DDR 333 Single Channel** (8/16/32 bits/pixel)	**Maximum Refresh Rate** (Hz) **DDR 333 Dual Channel** (8/16/32 bits/pixel)
640 x 480	85/85/85	85/85/85	85/85/85
800 x 600	85/85/85	85/85/85	85/85/85
1024 x 768	85/85/85	85/85/85	85/85/85
1152 x 864	85/85/85	85/85/85	85/85/85
1280 x 720	85/85/85	85/85/85	85/85/85
1280 x768	85/85/85	85/85/85	85/85/85
1280 x 960	85/85/85	85/85/85	85/85/85
1280 x 1024	85/85/85	85/85/85	85/85/85
1400 x 1050	85/85/85	85/85/85	85/85/85
1600 x 900	85/85/85	85/85/85	85/85/85
1600 x 1200	85/85/85	85/85/85	85/85/85
1856 x 1392	75/75/60	75/75/60	75/75/60
1920 x 1080	85/85/75	85/85/85	85/85/85
1920 x 1200	75/75/60	75/75/75	75/75/75
1920 x 1440	85/85/60	85/85/60	85/85/60
2048 x 1536	75/75/NA	75/75/NA	75/75/60

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Technical Specifications - Hard Drives

7200 rpm SMART III Ultra ATA/100 Hard Drives	**40-GB**	**Capacity**	40,000 MB	
		Rotational Speed	7200 rpm	
		Interface	Ultra ATA/100	
		Height	1 in (25.4 mm)	
		Width	3.5 in (88.9 mm)	
		Transfer Rate Synchronous (Maximum)	100 MB/s	
		Seek Time (typical reads, including settling)	Single Track	1.2 ms
			Average	8 ms
			Full-Stroke	18 ms
		Physical Configuration	Logical Blocks	78,165,360
		Operating Temperature	41° to 131° F (5° to 55° C)	

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Technical Specifications - Input/Output Devices

Easy Access Keyboard (PS/2 or USB)	**Dimensions** (HxWxD)	1.4 x 18.3 x 6.3 in (36 x 465 x160 mm)		
	Weight	Approximately 2 lb (0.9 kg)		
	Electrical	**Operating Voltage**	+ 5VDC ± 5%	
		Power Consumption	50 mA maximum (with 3 LEDs on)	
		System Interface	PS/2 mini-din connector	
		ESD	CE level 4, 15 kV air discharge	
		EMI-RFI	Conforms to FCC rules for a Class B computing device	
		PC98	Functionally compliant	
	Mechanical	**Languages**	30+ available	
		Keycaps	Low-profile design	
		Switch Actuation	55 g nominal peak force with tactile feedback	
		Switch Life	20 million keystrokes (using Hasco modified tester)	
		Switch Type	Contamination resistant membrane	
		Key Leveling Mechanism	For all double wide and greater length keys	
		Cable Length	6 ft (1.8 m)	
		PC98-99	Mechanically compliant	
		Acoustics	50 dBA maximum sound pressure level	
	Environmental	**Operating Temperature**	50° to 122° F (10° to 50° C)	
		Non-operating Temperature	-22° to 140° F (-30° to 60° C)	
		Operating Humidity	10% to 90% (non condensing at ambient)	

		Non-operating Humidity	20% to 80% (non condensing at ambient)
		Operating Shock	40 g, 6 surfaces
		Non-operating Shock	80 g, 6 surfaces
		Operating Vibration	2 g peak acceleration
		Non-operating Vibration	4 g peak acceleration
2-Button Scroll Mouse (PS/2 or USB)	**Scroll Wheel**	8 mm	
	Maximum Rotation Speed	30 mm/s	
	Switch Type	Light force micro-switch	
	Switch Life	1 million operations	
	Mechanical Life	Minimum 200,000 revolutions	
	Environmental	**Operating Temperature**	50° to 122° F (10° to 50° C)
		Non-operating Temperature	-22° to 140° F (-30° to 60° C)
		Operating Humidity	10% to 90% (non condensing at ambient)
		Non-operating Humidity	20% to 80% (non condensing at ambient)
		Operating Shock	40 g, 6 surfaces
		Non-operating Shock	80 g, 6 surfaces
		Operating Vibration	2 g peak acceleration
		Non-operating Vibration	4 g peak acceleration
	Electrical	**Operating Voltage**	+ 5VDC ± 10%
		Power Consumption	15mA
		System Consumption	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		PC98	Functionally compliant
	Mechanical	**Resolution**	400 ± 20% DPI
		Tracking Speed	10 in/s maximum
		Acceleration	100 in/s
		Switch Actuation	85 g nominal peak force
		Switch Life	1,000,000 operations (using Hasco modified tester)
		Cable Length	2 m
		PC98-99	Mechanically compliant
	Regulatory Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BCIQ, C-Tick	

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Technical Specifications - Optical Storage

48X Max CD-ROM Drive	**Interface**	ATAPI IDE	
	Data Buffer	16.6 Mbps	
	Data Transfer Rate	Sustained—150 Kbps minimum (audio)	
		Variable (CD)—3,000 to 7,200 Kbps	
	Disk Rotation Technology	CAV (Constant Angular Velocity)	

	Access Time (ms)	Random: <100 ms	
		Full-stroke seek: <150 ms	
	Average Access Time	< 80 ms	
	Cache Buffer (standard/ maximum)	128 KB	
	Disk Formats Read	Multi-session Photo CD, multi-read CD-ROM, CD text, audio CD, CD-I, CD-RW, CD-R, CD-Extra, CD-ROM XA	
	Disk Formats Written	None	
	Disk Capacity (CD)	650 MB	
	Block Size	Mode 1—2,048 bytes Mode 2—2,340/2,336 bytes CD-DA—2,352 bytes CD-XA—2,328 bytes	
	Diameter	12 cm; 8 cm	
	Thickness	1.2 mm	
	Track Pitch	1.6 µm	
	Audio Output Level	Line-out—0.7 V @ 47 Kohm	
		Headphone—0.6 V @ 32 ohm	
	Startup Time	<7 seconds (typical); < 30 seconds with multi-session	
	Operating Conditions	**Temperature**	41° to 113° F (5° to 45° C)
		Relative Humidity	10% to 80%
	Dimensions (H x W x D, maximum)	1.7 x 5.9 x 8.2 in (4.3 x 15.0 x 20.8 cm)	
	Weight	2.6 lbs (1200 g)	
	Operating Systems Supported	Microsoft® Windows® NT 4.0, Microsoft Windows 2000, and Microsoft Windows XP.	
	MPEG Playback Graphics Solution Support	None	

16X/40X DVD-ROM with +R Read Drive	**Height**	5.25-in, half-height	
	Interface Type	ATAPI	
	Dimensions– External, Excluding Bezel (W x H)	5.88 x 1.71 in (149.5 x 43.5 mm)	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	1.2 mm	
	Track Pitch	1.6 µm (CD), 0.74 µm (DVD)	
	Disc Center Hole Diameter	15 mm	
	Disc Formats	DVD-ROM (single and dual layer); DVD-video; DVD-R version 1.0 and 2.0; DVD-RW version 1.0 and 1.1; DVD-R multi-border; DVD+RW; DVD+R; CD-ROM Mode 1 and 2; CD-DA; CD-ROM XA Mode 2, Form 1 and 2; CD-extra; CD-text; CD-I Mode 2, Form 1 and 2; CD-I ready; video CD, CD-bridge; PhotoCD (single and multi-session); CD-R; CD-RW	
	Disc Capacity	**DVD-ROM**	4.7 GB (DVD-5), 8.54 GB (DVD-9), 9.4 GB (DVD-10), 3.95 GB (DVD-R version 1.0), 4.7 GB (DVD-R version 2.0), 4.7 GB (DVD-RW version 1.0 and 1.1), 4.7 GB (DVD+RW), 4.7G (DVD+R)
		CD-ROM	540 MB (Mode 1, 12 cm), 640 MB (Mode 2, 12 cm), 700 MB (80 minimum CD-R and CD-RW), 180 MB (8 cm)
	Block Size (bytes)	DVD-ROM – 2048; CD-ROM Mode 0 – 2352; CD-ROM Mode 1 – 2352, 2340, 2336, 2048; CD-ROM Mode 2 – 2352, 2340, 2336, 2048	
	Access Times (typical reads, including settling)	**DVD-ROM Single Layer**	< 120 ms
		CD-ROM Mode 1	< 90 ms
		Full Stroke DVD	< 240 ms (seek)
		Full Stroke CD	< 160 ms (seek)
	Data Transfer Rates	2600 – 6000 KB/s (40X CAV CD-ROM mode)	

		8100 – 21,600 KB/s (16X CAV DVD-ROM mode)	
	Data Transfer Modes	PIO Mode 4 (16.6 MB/s); Multi-word DMA mode 2 (16.6 MB/s); UltraDMA Mode 3 (44.4 MB/s)	
	Power	**Source**	Four-pin, DC power receptacle
		DC Power Requirement	5 VDC ± 5% – 100 mV ripple p-p
			12 VDC ± 5% – 200 mV ripple p-p
		DC Current	5 VDC – <800 mA typical, < 1000 mA maximum
			12 VDC – < 870 mA typical
	Audio Output Level	0.7 Vrms (typical)	
	Configuration Jumper Block	Master, slave, and cable select modes	
	Data Interface Connector	40-pin, shrouded and keyed, flat ribbon	
	Environmental (all conditions, non-condensing)	**Temperature** (operating)	41° to 122° F (5° to 50° C)
		Relative Humidity (operating)	10% to 85%
		Maximum Wet Bulb Temperature (operating)	86° F (30° C)
	Certifications, Approvals	MMC II support, multi-read certification, Microsoft WHQL certification, ACA AS/NZS 3548 class B, CNS 13438, C.I.S.P.R. Pub 22, TUV or VDE EN60950, EN 55022, EN55024, SEMKO, NEMKO, DEMKO, FIMKO, EN 60825-1, UL 60950, and CSA C22.2 60950-2000.	
	Operating Systems Supported	Microsoft Windows NT, Microsoft Windows 2000, and Microsoft Windows XP.	
48X Combo CD-RW/ DVD-ROM	**Disc Loading Mechanism**	5.25-inch, half-height, tray-load	
	Color	Carbonite	
	Orientation	Either horizontal or vertical	
	Interface Type	ATAPI	
	Dimensions (W x H x D)	5.77 x 1.71 x 7.36 in (146.5 x 43.5 x 187 mm) (external, excluding bezel)	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	0.05 in (1.2 mm)	
	Track Pitch	1.6 um (CD), 0.74 um (DVD)	
	Disc Center Hole Diameter	0.6 in (15 mm)	
	Reference Scanning Velocity	1.2 m/s (CD); 3.49 m/s (DVD SL); 3.84 m/s (DVD DL)	
	Read Only Disc Parameters	**Formats and Modes Supported**	CD-ROM—Mode 1; CD-ROM XA—Mode 2 (forms 1 and 2); CD-Bridge; CD digital audio; CD Extra; CD-I—Mode 2 (forms 1 and 2) and CD-I-Ready; Photo CD (single and multi-session); video CD; DVD (single- and double-layer); DVD-R; DVD-RW; DVD-RW Multi-Border; DVD+R; DVD+R Multi-Session, and DVD+RW
		Capacity	180 MB (mode 2, 8 cm); 540 MB (mode 1, 12 cm); 650 MB (mode 2, 12 cm); 700 MB (Mode 2, 12 cm); 4.7 GB (DVD-5); 8.54 GB (DVD-9); 9.4 GB (DVD-10)
		Block Size	Mode 1—2,048 and 2,352 bytes; mode 2, form 1—2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2—2,328; 2,336; 2,340 and 2,352 bytes; CD-DA—2,352 bytes; DVD—2,048 bytes
	Writeable Disc Parameters	**Disc Type**	CD-R and CD-RW
		Write Methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet
		Format and Modes Supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD; CD-Bridge;

		Video CD
	Capacity	180 MB (mode 2, 8 cm); 540 MB (mode 1, 12 cm); 650 MB (mode 2, 12 cm); 700 MB (mode 2, 12 cm);
	Block Size	CD-DA—2,352 bytes; mode 0— 2,336 and 2,352 bytes; mode 1—2,048 and 2,352 bytes; mode 2—2,336 and 2,352; mode 2, form 1—2,048 and 2,352 bytes; mode 2, form 2—2,324 and 2,352 bytes
Access Times (typical reads, including settling)	**Random DVD**	< 140 ms (typical)
	Random CD	< 125 ms, (typical)
	Full Stroke DVD	< 250 ms (seek)
	Full Stroke CD	< 210 ms (seek)
Data Transfer Rates	**Sustained — CD-R write**	600 KB/s (4X), 1800 KB/s (12X)
	Sustained — CD-RW write	600 KB/s (4X, 1-4X media), 1500 KB/s (10X, 4-10X media)
	Variable — CD-R write	2400 KB/s (16X), 3600 KB/s (24X), 4800 KB/s (48X)
	Variable — CD-ROM, CD-R Read	1500 – 6000 KB/s (10X to 40X)
	Variable — DVD ROM	8112 - 21,632 KB/s (6X - 16X)
	Variable — DVD Video	1352 – 3268 KB/s (2.4X)
	Variable — DVD-R, DVD-RW	1352 – 3268 KB/s (2.4X)
	Variable — DVD+R, DVD-RW	1352 – 3268 KB/s (2.4X)
	Variable — DVD+R, DVD-RW	1352 – 3268 KB/s (2.4X)
	Variable — CD-RW read	1800 to 4800 KB/s (12X - 32X CAV)
	Variable — Digital Audio Extraction	1800 to 4800 KB/s (12X - 32X CAV)
Data Transfer Modes	ATA PIO mode 4 (16.7 MB/s); ATA Multi-word DMA mode 2 (16.7 MB/s); ATA UltraDMA mode 0 (16.7 MB/s); ATA UltraDMA mode 1 (24 MB/s), mode 2 (33 MB/s); ATA UltraDMA Mode 3 44 Mbytes/s (default)	
	Cache Buffer	2 MB (minimum)
	Startup Time (single)	< 7 seconds (typical)
	Startup Time (multi-session)	< 30 seconds (typical)
	Stop Time	< 4 seconds
Power	**Source**	Four-pin, DC power receptacle
	DC Power Requirement	5 VDC ± 5%—100 mV ripple p-p 12 VDC ± 5%—200 mV ripple p-p
	DC Current	5 VDC (< 1000 mA typical, < 1600 mA maximum) 12 VDC (< 600 mA typical, < 1400 mA maximum)
	Total Drive Power (standby mode)	< 2.5 Watt
Audio Output Level	0.7 Vrms (typical)	
Configuration Jumper Block	Master, slave, and cable select modes	
Data Interface Connector	40-pin, shrouded and keyed, flat ribbon	
Environmental (all conditions, non-condensing)	**Temperature** (operating)	41° to 122° F (5° to 50° C)
	Relative humidity (operating)	10% to 90%
	Maximum wet bulb temperature (operating)	86° F (30° C)

	Certifications, Requirements	MPC-3 compliant, multi-read requirements, ACA AS/NZS 3548, ANSI C63.4–1992, ATAPI Spec SFF-8020, ATA Spec X3T9.2, CB Bulletin No. 92A, CSA C22.2 No. 950-1995, C.I.S.P.R. Pub 22, EMKO-TSE 207/94, TUV or VDE EN60 950, EN60825-1, Microsoft PC2001 certification, Microsoft Logo for Windows XP, 2000, and NT4
	Operating Systems Supported	Microsoft Windows NT 4.0, Microsoft Windows 2000, and Microsoft Windows XP. **NOTE:** MPEG video playback is not supported on Microsoft Windows NT.
	Option Kit Contents	48X Combo CD-RW/DVD-ROM Drive, Roxio™ Easy CD Creator, Dantz Retrospect Express, InterVideo™ WinDVD™ MPEG Movie Playback software, CD-R media, high-speed CD-RW media, audio cable, and installation guide.

48X/32X/48X CD-RW Drive	**Orientation**	Either horizontal or vertical	
	Disc Loading Mechanism	Half-height, tray load	
	Interface Type	ATAPI IDE	
	Dimensions-external (W x H x D)	7.99 x 5.88 x 1.71 in (203 x 149.5 x 43.5 mm)	
	Weight	2.6 lb (1.2 kg)	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	1.2 mm	
	Track Pitch	1.6 µm	
	Disc Center Hole Diameter	15 mm	
	Reference Scanning Velocity	1.2 m/s	
	Recording/Playing Time	80 minutes with CD-R media	
	Read Only Disc Prameters	**Formats and Modes Supported**	CD-ROM-Mode 1; CD-ROM XA-Mode 2 (forms 1 and 2); CD digital audio; CD Extra; CD-I-Mode 2 (forms 1 and 2) and CD-I-Ready; Photo CD (single and multi-session); video CD
		Capacity	185 MB (Mode 2, 8cm); 540 MB (Mode 1, 12 cm); 650 MB (Mode 2, 12 cm); 700 MB (Mode 2, 12 cm)
		Block Size	Mode 1-2,048 and 2,352 bytes; mode 2, form 1-2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2-2,328; 2,336; 2,340 and 2,352 bytes; CD-DA-2,352 and 2,368 bytes
	Writeable Disc Parameters	**Disc Type**	CD-R and CD-RW
		Write Methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet
		Format and Modes Supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD
		Capacity	185 MB (Mode 2, 8cm); 540 MB (Mode 1, 12 cm); 650 MB (Mode 2, 12 cm); 700 MB (Mode 2, 12 cm)
		Block Size	Mode 1-2,048 bytes; mode 2, form 1-2,048 and 2,352 bytes; mode 2, form 2-2,352 bytes; CD-DA-2,352 bytes
	Access Times (typical)	**Random**	< 120 ms
		Full Stroke	< 200 ms
	Maximum Data Transfer Rates	**CD-RW write**	4800 KB/s (32X) Max
		CD-ROM, CD-R read	7200 KB/s (48X) Max
		CD-RW read	7200 KB/s (32X) Max
		CD-R write	7200 KB/s (48X) Max

Data Transfer Modes	ATA PIO mode 4 (16.7MB/s); ATA multi-word DMA mode 2 (16.7 MB/s); ATA UltraDMA mode 0 (16.7 MB/s); ATA UltraDMA mode 1 (24 MB/s); ATA UltraDMA mode 2 (33 MB/s) - default.		
Start-up Time (single)	< 7 seconds typical		
Start-up Time (multi-session)	< 30 seconds typical		
Stop Time	< 4 seconds		
Power	**Source**	Four-pin, DC power receptacle	
	DC power requirement	5 VDC 5%-100 mV ripple p-p 12 VDC 5%-200 mV ripple p-p	
	DC current	5 VCD	< 1A (typical) < 1600 mA (maximum)
		12 VCD	< 600 mA (typical) < 1.4A (maximum)
		Total Drive Power (Standby mode)	< 2.5 watt
Audio Output Level	0.7 Vrms		
Configuration Jumper Block	Master, slave and cable select modes		
Data Interface Connector	50-pin IDE interface		
Environmental (all conditions, non-condensing)	**Temperature** (operating)	Operating 41° to 122° F (5° to 50° C)	
	Relative Humidity (operating)	10% to 90%	
	Maximum Wet Bulb Temperature (operating)	84° F (29° C)	
Certifications, Requirements	ACA AS/NZS 3548, ANSI C63.4-1992, CB Test Certificate for IEC 950, CE Mark, CFR 47 part 15, CNS 13438, CSA C22.2 No. 60950, DHHS/ FDA - 1040, EN60825, EN55022:1998, EN55024, EN60 950:2000, ICES-003 class B, IEC 61000 4-2 - 4-11, Nordic EN60 950, TUV or VDE EN60 950, UL 60950, C.I.S.P.R. Publication 22 Class B, BSMI, Microsoft P2001, Microsoft Logo for Windows 98, 2000 and XP		
Operating Systems Supported	Microsoft Windows 2000, Microsoft Windows XP Professional, Microsoft Windows XP Home		

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Technical Specifications - Removable Storage

1.44-MB Diskette Drive	**Diskette Size**	3.5 in (8.89 cm)	
	LED Indicators (front panel)	Green	
	Read/Write Capacity per diskette (high/low density)	1.44 MB/720 KB	
	Drive Supported	One	
	Drive Height	One-third	
	Drive Rotation	300 rpm	
	Transfer Rate (high/low)	500/250 Kb/s	
	Bytes/Sector	512	
	Sectors/Track (high/low)	18/9	
	Tracks/Side (high/low)	80/80	
	Access Times	**Track-to-Track** (high/ low)	3/6 ms

Average (high/low)	169/94 ms
Settling Time	15 ms
Latency Average	100 ms

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